

WHAT IS CLAIMED IS:

1. A method for performing annuloplasty, the method comprising:  
creating a first plication in the tissue near a mitral valve of a heart, the first  
5 plication being created using at least a first plication element; and  
creating a second plication in the tissue near the mitral valve, wherein the second  
plication is substantially coupled to the first plication.
2. The method of claim 1 further including:  
10 accessing a left ventricle of the heart to provide the first plication element to the  
left ventricle; and  
engaging the first plication element to the tissue near the mitral valve, wherein  
engaging the first plication element includes causing the first plication element to  
substantially pass through a portion of the tissue to substantially anchor the first plication  
15 element to the tissue near the mitral valve.
3. The method of claim 2 wherein the first plication element is an anchor  
arrangement with a tail, and creating the first plication in the tissue near the mitral valve  
includes:  
20 accessing the left ventricle of the heart to provide a second plication element to  
the left ventricle, the second plication element being an anchor arrangement with a tail;  
engaging the second plication element to the tissue near the mitral valve, the  
second plication element being separated from the first plication element by a first  
distance, wherein engaging the second plication element includes causing the second  
25 plication element to substantially pass through the tissue to substantially anchor the  
second plication element to the tissue near the mitral valve; and  
providing a first locker element over the tail of the first plication element and the  
tail of the second plication element.

4. The method of claim 3 wherein creating the second plication in the tissue near the mitral valve includes:

accessing the left ventricle of the heart to provide a third plication element to the left ventricle, the third plication element being an anchor arrangement with a tail;

5 engaging the third plication element to the tissue near the mitral valve, the third plication element being separated from the second plication element by a second distance, wherein engaging the third plication element includes causing the third plication element to substantially pass through the tissue to substantially anchor the third plication element to the tissue near the mitral valve; and

10 providing a second locker element over the tail of the second plication element and the tail of the third plication element.

5. The method of claim 4 wherein the first distance and the second distance are approximately the same.

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6. The method of claim 2 wherein the first plication element is delivered to the left ventricle using a catheter.

7. The method of claim 5 wherein the catheter has a deflectable tip.

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8. The method of claim 2 further including:

accessing the left ventricle using an incrementor catheter, the incrementor catheter including a first section and a second section, wherein the first section is arranged to be tracked over a tail of the first plication element.

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9. The method of claim 8 further including:

deploying the incrementor catheter, wherein deploying the incrementor catheter includes positioning a tip of the second section at the first distance distance away from a tip of the first section.

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10. A method for performing annuloplasty, the method comprising:  
accessing a heart to provide a plurality of plication elements to the heart, the  
plurality of plication elements being provided to the heart through a catheter  
arrangement, the plication elements including a first anchor arrangement;  
5 engaging the first anchor arrangement to tissue near a mitral valve of the heart  
using the catheter arrangement to substantially anchor the first anchor arrangement to the  
tissue near the mitral valve; and  
creating at least a first plication and a second plication using the first anchor  
arrangement.

11. The method of claim 10 wherein engaging the first anchor arrangement includes  
causing the first anchor arrangement to substantially pass through the tissue near the  
mitral valve.

12. The method of claim 11 wherein the plurality of plication elements includes a first  
locking element and a second locking element, and accessing the heart to provide the  
plurality of elements to the heart includes:

accessing a left ventricle of the heart to provide the first locking element to the  
left ventricle;

substantially deploying the first locking element over the first anchor arrangement  
to create the first plication; and

substantially deploying the second locking element over the first anchor  
arrangement to create the second plication.

13. The method of claim 12 wherein the first anchor arrangement includes a tail  
portion, and substantially deploying the first locking element over the first anchor  
arrangement includes substantially deploying the first locking element over the tail  
portion and substantially deploying the second locking element over the second anchor  
arrangement includes substantially deploying the second locking element over the tail  
portion.

14. The method of claim 13 wherein creating at least the first plication and the second plication using the first anchor arrangement includes:

5       applying tension to the tail portion to create the first plication using the first locking element; and  
      applying tension to the tail portion to create the second plication using the second locking element.

15. The method of claim 14 wherein tension is applied to the tail portion to create the first plication and to create the second plication substantially simultaneously.

16. The method of claim 10 wherein the catheter arrangement has a deflectable tip.

17. A method for performing annuloplasty, the method comprising:  
15       accessing an area of a heart using a catheter arrangement, the catheter arrangement including a first portion;  
      temporarily anchoring the first portion of the catheter arrangement to the tissue near the mitral valve of the heart;  
      providing an anchor element to the area; and  
20       engaging the anchor element to the tissue near the mitral valve, wherein the first portion of the catheter arrangement is arranged to substantially provide a counter-traction force associated with engaging the anchor element.

18. The method of claim 17 wherein engaging the anchor element to the tissue near the mitral valve includes causing the anchor element to substantially pass through a portion of the tissue near the mitral valve to substantially anchor the anchor element to the tissue near the mitral valve.

19. The method of claim 18 wherein the area is a left ventricle of the heart.

20. The method of claim 19 further including:  
substantially detaching the first portion of the catheter arrangement from the  
tissue near the mitral valve.

5 21. The method of claim 19 wherein the first portion of the catheter arrangement is a  
tip of the catheter arrangement.

22. The method of claim 19 wherein the first portion of the catheter arrangement is a  
coiled wire of the catheter arrangement.

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23. The method of claim 19 wherein providing the anchor element to the left ventricle  
includes providing the anchor element using the catheter arrangement.

15 24. The method of claim 23 wherein the catheter arrangement has a deflectable tip  
and a pull wire arranged to deflect the deflectable tip to position one of the anchor  
element and the first portion.

25. A method for performing annuloplasty, the method comprising:  
accessing an area of a heart using a catheter arrangement, the catheter  
20 arrangement including a first portion;  
temporarily anchoring the first portion of the catheter arrangement to the tissue  
near the mitral valve of the heart;  
providing an anchor element to the area; and  
engaging the anchor element to the tissue near the mitral valve, wherein the first  
25 portion of the catheter arrangement is arranged to substantially position a tip of the  
catheter arrangement at the tissue near the mitral valve .

26. The method of claim 25 wherein engaging the anchor element to the tissue near  
the mitral valve includes causing the anchor element to substantially pass through a

portion of the tissue near the mitral valve to substantially anchor the anchor element to the tissue near the mitral valve.

27. The method of claim 26 wherein the area is a left ventricle of the heart.

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28. The method of claim 27 further including:  
substantially detaching the first portion of the catheter arrangement from the tissue near the mitral valve.

10 29. The method of claim 27 wherein the first portion of the catheter arrangement is the tip of the catheter arrangement.

30. The method of claim 27 wherein the first portion of the catheter arrangement is a coiled wire of the catheter arrangement.

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31. The method of claim 27 wherein providing the anchor element to the left ventricle includes providing the anchor element using the catheter arrangement.

20 32. The method of claim 31 wherein the catheter arrangement has a deflectable tip and a pull wire arranged to deflect the deflectable tip to position one of the anchor element and the first portion.

25 33. A method for performing annuloplasty, the method comprising:  
accessing an area of a heart to provide a first plication element to the area using a catheter arrangement, the catheter arrangement including a first portion and a second portion;

substantially anchoring the first portion of the catheter arrangement to tissue near a mitral valve of the heart;

30 positioning a tip of the second portion of the catheter arrangement at a first distance from the first portion; and

substantially engaging the first anchor to the tissue near the mitral valve of the heart using the second portion of the catheter arrangement.

34. The method of claim 33 wherein substantially anchoring the first portion of the catheter arrangement to tissue near the mitral valve of the heart includes:

positioning the first portion of the catheter arrangement over a guide, the guide being substantially anchored to the tissue near the mitral valve.

35. The method of claim 33 wherein the first anchor includes a tail, the method further including:

substantially unanchoring the first portion of the catheter arrangement from tissue near a mitral valve of the heart;

positioning the first portion of the catheter arrangement over the tail;

positioning the tip of the second portion of the catheter arrangement at a second distance from the first portion; and

substantially engaging a second anchor to the tissue near the mitral valve of the heart using the second portion of the catheter arrangement.

36. The method of claim 35 further including:

creating a plication using at least the first anchor and the second anchor.

37. A method for performing annuloplasty, the method comprising:

accessing an area of a heart to provide a first plication element to the area using a catheter arrangement, the catheter arrangement including a deflectable tip area and a pull wire arranged to cause the deflectable tip area to deflect;

altering a curvature in the tip area to reach tissue near a mitral valve of the heart, wherein altering the curvature includes substantially actively controlling the pull wire; and

engaging the first plication element to the tissue near the mitral valve.

38. The method of claim 37 wherein engaging the first plication element includes causing the first plication element to substantially pass through a portion of the tissue to substantially anchor the first plication element to the tissue near the mitral valve.

5 39. The method of claim 38 wherein the area is a left ventricle of the heart.

40. The method of claim 38 wherein the catheter arrangement is a hook catheter arrangement, the tip area being substantially shaped as a hook.

10 41. The method of claim 40 wherein the catheter arrangement further includes a temporary anchor, and the method further includes:  
deploying the temporary anchor; and  
substantially temporarily anchoring the temporary anchor to the tissue near the mitral valve.

15 42. The method of claim 41 wherein the method further includes:  
unanchoring the temporary anchor from the tissue near the mitral valve.

20 43. The method of claim 40 further including:  
deploying an anchor element through the catheter arrangement; and  
anchoring the anchor element to the tissue near the mitral valve.

25 44. A method for performing annuloplasty, the method comprising:  
accessing an area of a heart using a catheter arrangement, the catheter arrangement including a deflectable tip portion and a pull wire arranged to cause the deflectable tip area to deflect;  
altering a curvature in the tip area to reach tissue near a mitral valve of the heart, wherein altering the curvature includes substantially actively controlling the pull wire to position the tip area; and



temporarily engaging the tip area to the tissue near the mitral valve, wherein temporarily engaging the tip area to the tissue near the mitral valve enables the catheter arrangement to deliver at least a first plication element to the tissue near the mitral valve.

5     45.     The method of claim 44 further including engaging the first plication element to the tissue near the mitral valve, wherein engaging the first plication element includes causing the first plication element to substantially pass through a portion of the tissue to substantially anchor the first plication element to the tissue near the mitral valve.

10    46.     The method of claim 45 wherein the area is a left ventricle of the heart.

47.     The method of claim 45 wherein the catheter arrangement is a hook catheter arrangement, the tip area being substantially shaped as a hook.

15    48.     A method for performing annuloplasty, the method comprising:  
accessing a left ventricle of a heart to provide a first plication element to the left ventricle using a catheter arrangement;  
creating a curvature in the catheter arrangement to reach tissue near a mitral valve of the heart, the curvature being at an orthogonal orientation with respect to the mitral  
20    valve; and  
engaging the first plication element to the tissue near the mitral valve, wherein engaging the first plication element includes causing the first plication element to substantially pass through a portion of the tissue to substantially anchor the first plication element to the tissue near the mitral valve.

25    49.     The method of claim 48 wherein creating the curvature includes creating approximately a 180 degree curve in the catheter arrangement.

50.     The method of claim 48 further including:

accessing the left ventricle using an incrementor catheter, the incrementor catheter including a first section and a second section, wherein the first section is arranged to be tracked over a tail of the first plication element.

5 51. The method of claim 50 further including:

deploying the incrementor catheter, wherein deploying the incrementor catheter includes positioning a tip of the second section at a distance away from a tip of the first section.

10 52. The method of claim 51 further including:

engaging a second plication element to the tissue at approximately the distance away from the first plication element using the second section.

53. The method of claim 52 further including:

15 creating a plication using the first plication element and the second plication element.

54. An incrementor catheter comprising:

20 a first lumen, the first lumen being arranged to track over a wire, the wire being substantially anchored within a left ventricle of a heart; and

a second lumen, the second lumen having a second tip that is arranged to be moved at a distance away from a first tip of the first lumen, wherein the second lumen is arranged to carry and to deploy a plication element.

25 55. A method for performing annuloplasty comprising:

temporarily fixing a helical coil of a first element in tissue near a mitral valve of the heart, the first element including a tail; and

tracking a catheter arrangement over the tail, wherein the catheter arrangement is arranged to substantially permanently fix a second element to the tissue.

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56. The method of claim 55 wherein the catheter arrangement is an incrementor catheter.

57. The method of claim 55 wherein temporarily fixing the helical coil of the first  
5 element includes using one of an L-shaped catheter and a hook catheter to temporarily fix  
the helical coil.